BuildMath

Divide with Object + Gap

One worked example, with the maths behind each result - follow it in the app and check it by hand.

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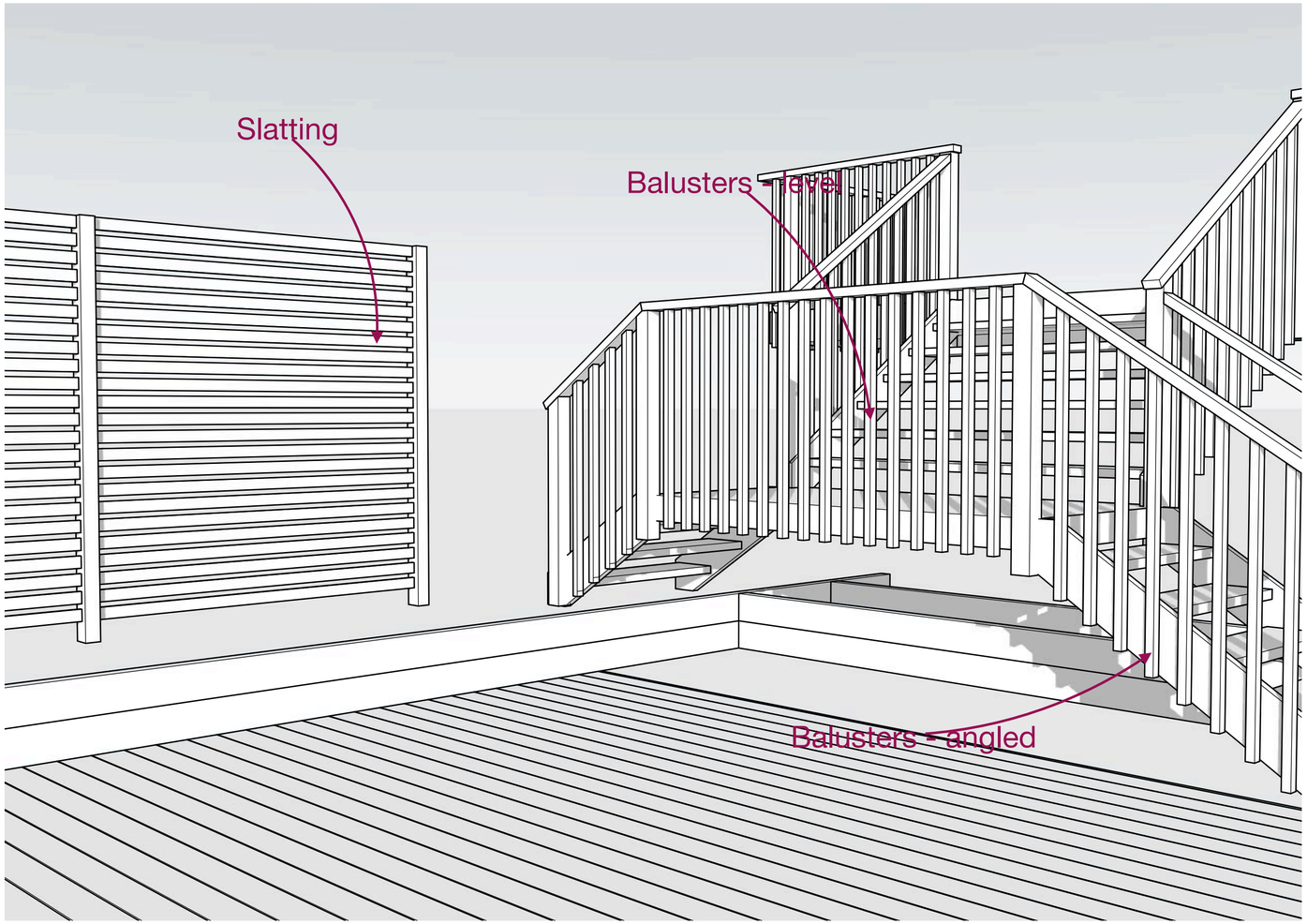


Object + Gap spaces objects evenly across an opening, with no gap bigger than the one you set.

Balusters are one use; fence pickets, battens and slats work the same way.

Space between =
(opening – objects × object width) ÷ spaces

Gap on end: spaces = objects + 1

Object on end: spaces = objects – 1

Note:
To set out from the centre with cut pieces at each end, like tiles or decking, use Divide Spaces.

Inputs



Choose Gap on end or Object on end
Gap on end - between two posts, with a gap at each end. This example is Gap on end.
Object on end - an object at both ends of the width.

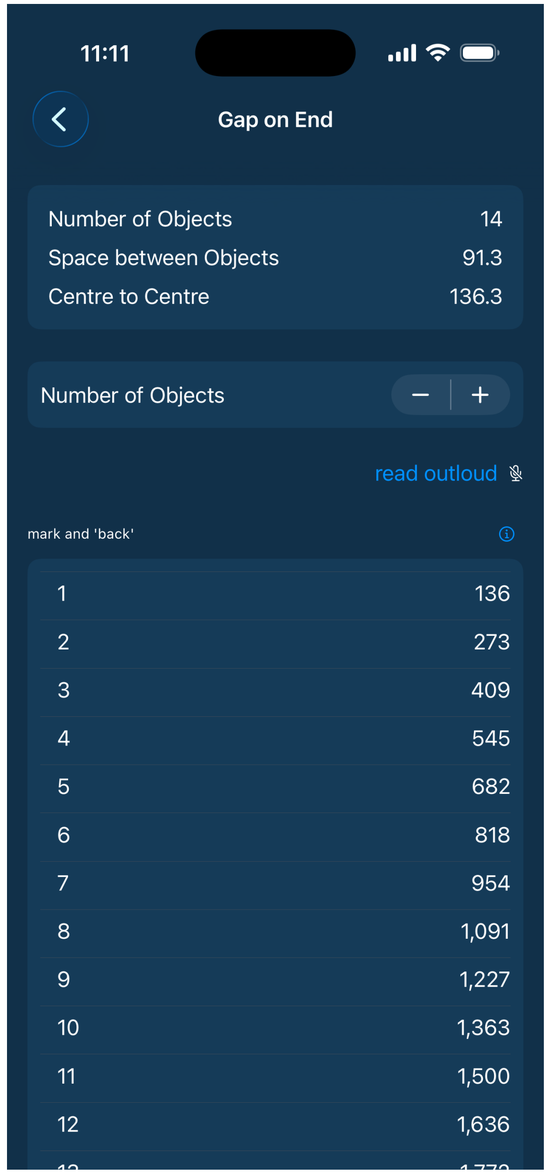
Choose Level or Angled
Level here. Angled is for a raking run - enter the length along the slope and the angle; the marks come out on the slope.

Enter the values

Opening Width	2000 - between the posts.
Object Width	45 - the baluster.
Maximum Spacing	100 - the biggest gap allowed.

Entering values and saving configs: see Build Math - the basics.

Results



Gap on end
(2000 + 45) ÷ (45 + 100) = 14.1 - round up to 15 spaces, so 14 objects.
2045 ÷ 15 = 136.3 centre to centre; 136.3 – 45 = 91.3 between.
Check: (2000 – 14 × 45) ÷ 15 = 91.3
Marks - mark and 'back': 136, 273, 409 ... 1909. Each mark is the far side of an object.

Object on end - same inputs
(2000 – 45) ÷ (45 + 100) = 13.5 - round up to 14 spaces, so 15 objects.
1955 ÷ 14 = 139.6 centre to centre; 139.6 – 45 = 94.6 between.
Marks - mark and 'away': 0, 140, 279 ... 1955. Each mark is the near side of an object; the last one finishes at 1955 + 45 = 2000.

The next page shows how Gap on end and Object on end differ at the ends.

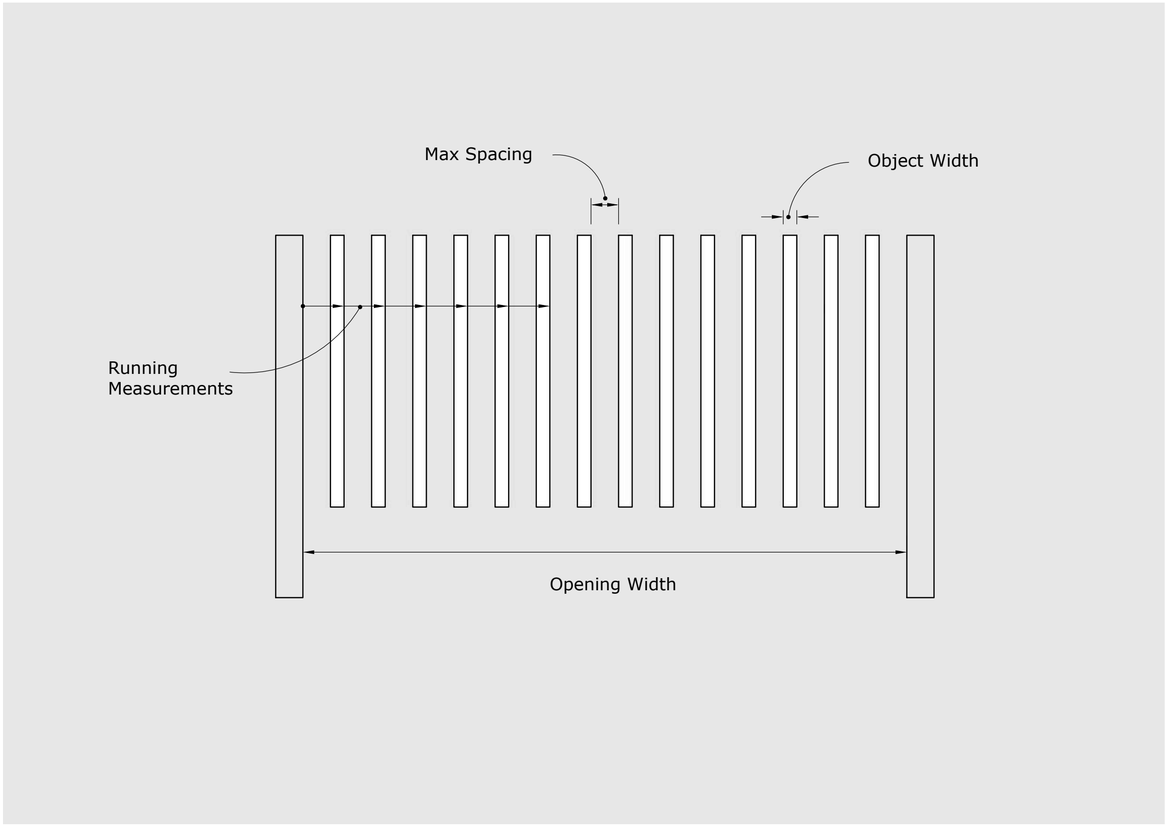
More objects
Add one and it recalculates - Gap on end with 15 objects: 127.8 centre to centre, 82.8 between.

Angled
The spacing is worked out level, then the marks are put back on the slope.
Level width: 2000 × cos(30°) = 1732.1
(1732.1 + 45) ÷ 145 = 12.3 - round up to 13 spaces, so 12 objects.
1777.1 ÷ 13 = 136.7 level centre to centre; 91.7 between - under the 100 maximum.
Marks on the slope: 136.7 ÷ cos(30°) = 157.8 apart - 158, 316, 474 ... 1894.

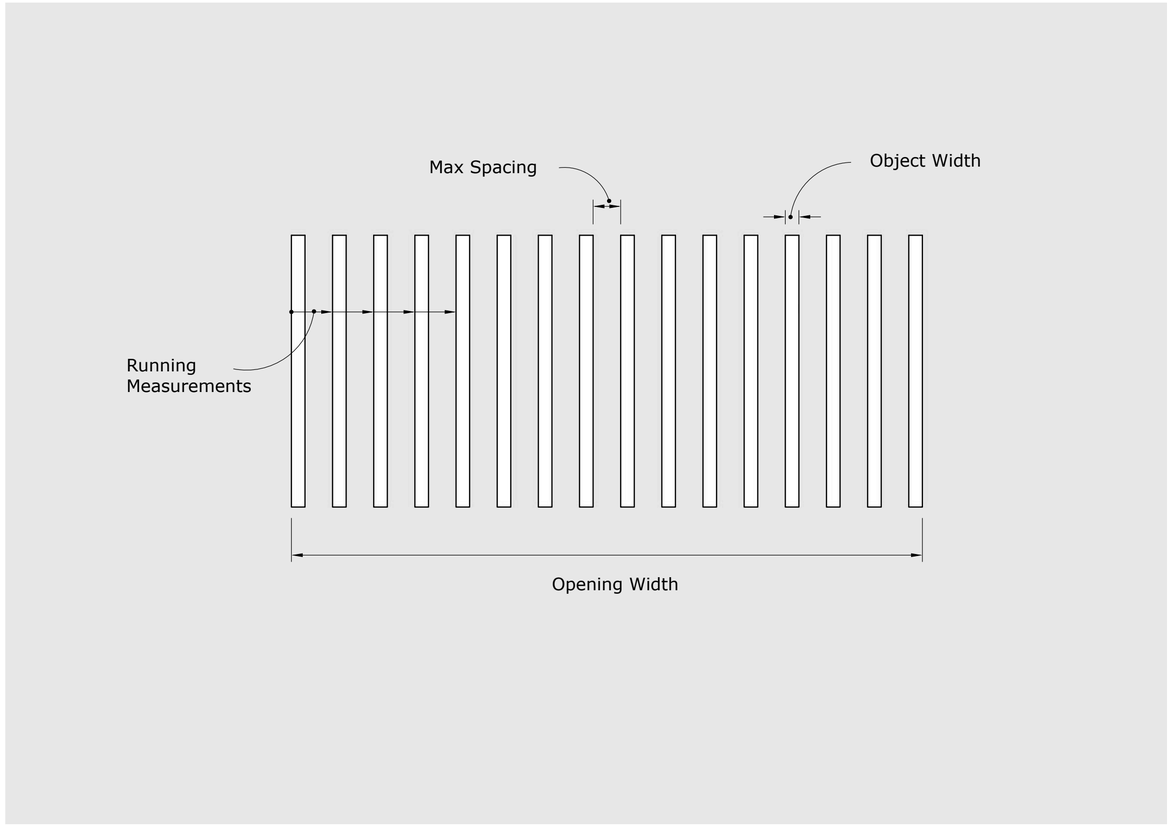
The last page shows how the opening, spacing and marks sit on the angle.

Read the list out loud: see Build Math - the basics.

Gap on end - Object on end

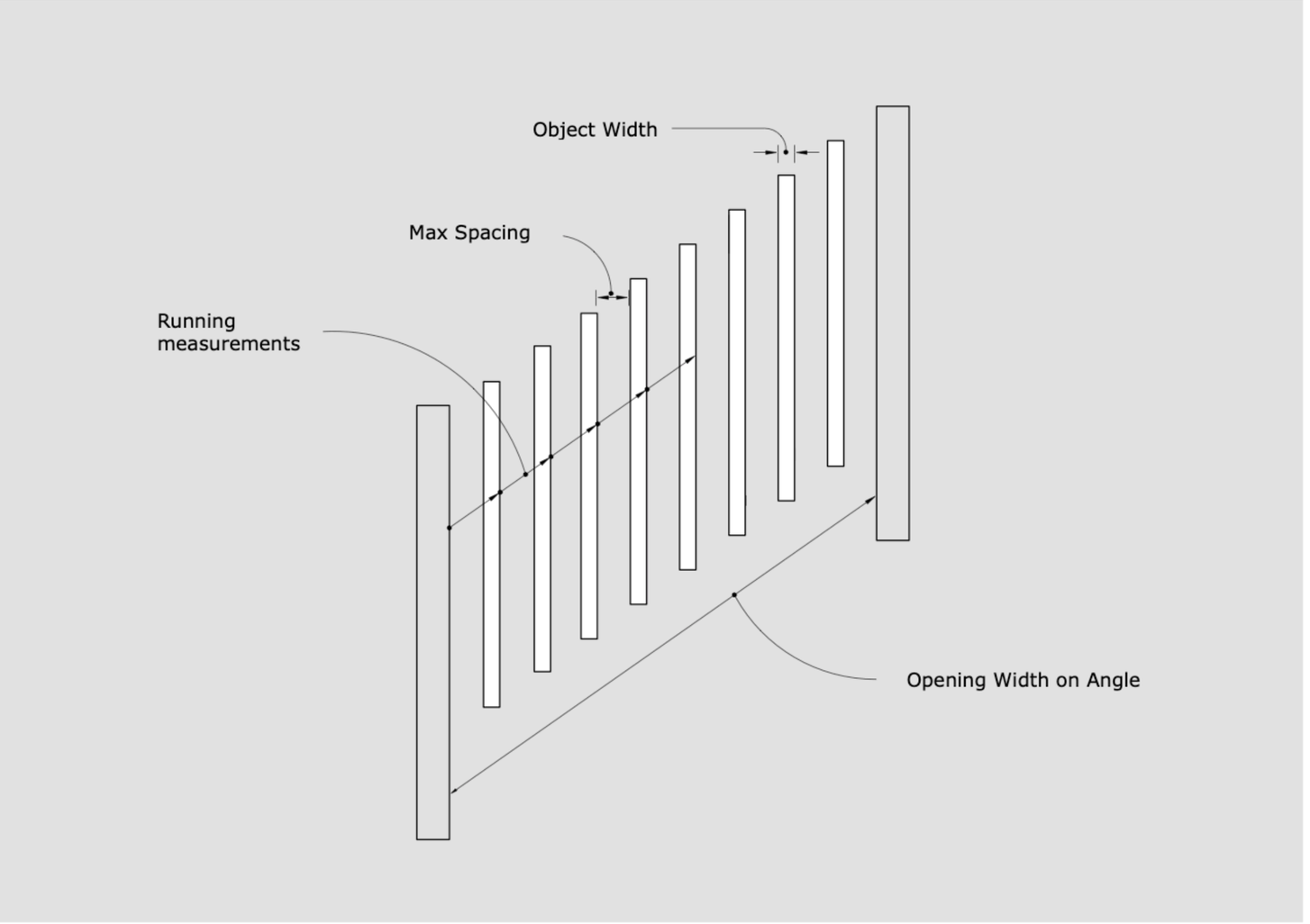


Gap on end



Object on end

Angled


Object Width
Max Spacing
Running
measurements
Opening Width on Angle